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For Acquisition, Technology
and Logistics**

The Commercial Operations and
Cost Savings Initiative

COSSI
Challenges and Solutions for Success

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Commercial Operations and Support Savings Initiative Handbook

The Commercial Operations and Support Savings Initiative (COSSI) program was designed to improve readiness and reduce operations and support (O&S) costs by inserting existing commercial items or technology into military legacy systems. COSSI emphasizes the rapid development of prototypes and fielding of production items based on current commercial technology.

This handbook will enhance the ability of contracting officers, COSSI program managers and other personnel to optimize program benefits. The handbook does this by clarifying pre-award and post award procedures, summarizing lessons learned from existing programs, and offering practical management reference tools for both civilian contractor and military customer participants who are transitioning COSSI programs from prototype development to production.

Though nothing in this handbook should be construed as directive in nature, I encourage you to use and apply it. All processes described are examples. Those processes actually used should be tailored to each specific application. This handbook is available online at www.acq.osd.mil/ar. Any questions or feedback concerning the handbook should be referred to Craig Curtis, Office of Acquisition Initiatives, at (703) 697-6399, or electronically at craig.curtis@osd.mil.

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INTRODUCTION

The goals of the Commercial Operational and Support Savings Initiative (COSSI) are to improve readiness and reduce operations and support (O&S) costs by inserting existing commercial items or technology into military legacy systems. COSSI emphasizes the rapid development of prototypes and fielding of production items based on current commercial technology. The program also implements the goals of the current Administration and the Secretary of Defense to:

- ◆ expand the use of commercial practices and products that will facilitate the modernization of our military forces,
- ◆ improve the acquisition process, and
- ◆ make near-term investments to acquire modern capabilities based upon U.S. scientific and industrial preeminence.

This handbook will enhance the ability of Contracting Officers, COSSI Program Managers (PMs), and program personnel (users) to optimize COSSI benefits. The handbook will do this by clarifying pre- and post-award procedures, summarizing lessons learned from existing programs, and offering practical management reference tools for both the civilian contractor and military customer participants who are transitioning COSSI programs from prototype development to production.

Nothing in this handbook should be construed as directive in nature. All processes described are examples. Those processes actually used should be tailored to each specific application.

BACKGROUND

Many Department of Defense (DoD) systems require maintenance long beyond the useful life initially anticipated. Extending the service life of military systems increases the costs of ownership (i.e., O&S costs). For the purposes of COSSI, O&S costs are the costs of owning and operating a military system, including the costs of personnel, consumables, goods and services, and sustaining the support and investment associated with the peacetime operation of a weapon system.¹ One way to reduce O&S costs is to take advantage of the commercial sector's technological innovations by inserting commercial technology into fielded weapon systems (see Figure 1).

¹ Office of the Secretary of Defense Cost Analysis Improvement Group, *Operating and Support Cost-Estimating Guide*. Washington, D.C., May 1992.

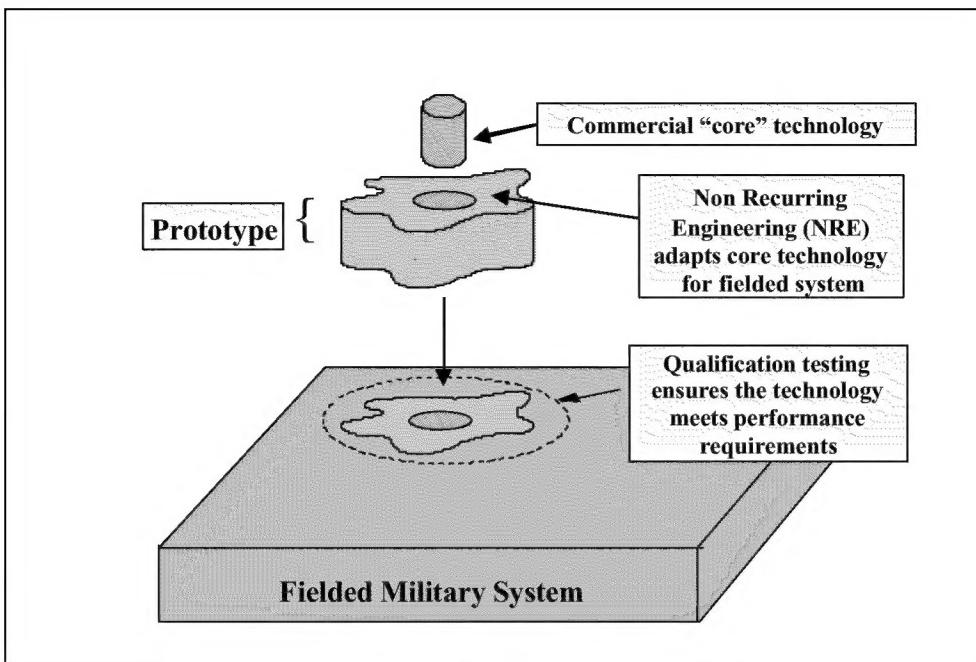


Figure 1

COSSI funding leverages technology developments made by commercial firms, reducing research and development (R&D) costs for the DoD.

COSSI involves a two-stage process. In Stage I, COSSI funds are used to perform the non-recurring engineering (NRE), testing, and qualification that are typically needed to adapt a commercial item/technology for use in a military system. Selected contractors develop, fabricate, and deliver a prototype "kit" to a military customer for installation into a fielded DoD system. Each prototype kit consists of a commercial item, or a combination of commercial items, that has been adapted, qualification-tested, and readied for insertion. Stage I generally lasts two to three years. Stage II involves the purchase of production quantities of the prototype kits.

USE OF STAGE I FUNDS

The purpose of Stage I is to develop and test a prototype. Accordingly, Stage I funds may not be used for training purposes. Stage I funds may be used to acquire technical data when needed to support sustainment or a follow-on procurement.

RESULTS

Since COSSI funding began in Fiscal Year (FY) 1997, 77 projects have been funded through the program. COSSI has contributed an investment of \$234 million, and contractor spending has contributed another \$143 million. The

projected O&S cost savings for 30 projects from FY 1997 and 1999 that have transitioned or will transition into Stage II are over \$5 billion. These results do not even take into account the excellent progress being made in the FY 2000 programs.

Although the foundations of COSSI are at the forefront of Defense reform and have proven to be successful formulas for success, issues remain in the interpretation, transition, and implementation of the program. In order to clarify the challenges that have arisen in the management of COSSI, the COSSI Program Office has surveyed program participants to identify solutions and suggestions for future guidance.

COSSI SURVEYS

Over the life of the program, the COSSI Program Office has conducted several surveys to assess participants' experiences. The survey results can be grouped into three primary areas:

1. COSSI communications,
2. COSSI program transition, and
3. Acquisition transition.

The sections below address lessons learned in each area.

ISSUE 1: THE COSSI COMMUNICATION CHALLENGE

Coordination and Cooperation During Stage I

In Stage I, the contractor is required to adapt a commercial item/technology for use in a designated military system. Activities performed include the development of a prototype that offers interface, environmental, and/or performance improvements. The contractor also may need to perform NRE on the target system to prepare it for the prototype kit. Stage I must include any required qualification testing to demonstrate that the kit will not degrade system-level performance and will produce the expected O&S savings. In each of these activities, thorough communication between the contractor, the Government technical monitor, and the military customer is paramount to ensure the efficient execution of the program.

Contractors and Government personnel have reported a lack of adequate communications during Stage I. This occurs when:

- ♦ statements of work or statements of objective are not clear in portraying the parties' intents,
- ♦ the contractor loses sight of the end user's needs,

- ◆ the commercial technology requires greater development than originally planned,
- ◆ the Government PM requires excessive performance improvements to the core commercial technology,
- ◆ the Government integrated process team (IPT) adds testing requirements (i.e., “requirements creep”), and/or
- ◆ the Government PM did not adequately define needed testing before award.

Lessons Learned

One resource some PMs have used to gain perspective is industry technology “road maps.” Industry firms, industry associations, and Government agencies are successfully using road-mapping techniques. The term road-mapping is broadly applied to the use of a structured scientific planning process to graphically represent complex, dynamic R&D processes for achieving important strategic goals. Road-mapping is mutually beneficial to the PM and the industry contractor. Road-mapping predicts the complexities of the planned technological development, thereby helping to identify any major business risks and opportunities for the contractor. By carefully reviewing road-map documents, a PM can gain an understanding of the broader context of the overall technology and how a specific COSSI program fits within it.

If used properly, the formation of an IPT, with representation from the science and technology, program, and logistics communities, as well as the customer, can be very successful in reducing communication problems. The IPT should review military design characteristics and values and identify ambiguities. However, IPTs can cause more harm than good if not managed properly. In one project, a contractor reported that aggressive IPT reviews of performance improvements caused extensive additional costs to both the Government and contractor, and did not significantly improve the product. Successful IPTs realize that the Government output is advice, not direction. The contractor reported that in the future it would improve program management oversight to maintain rigorous system engineering in order to control requirements creep. The Government needs to define its requirements on a performance basis and allow the contractor the flexibility of determining how to best meet or exceed those requirements.

Other communication tools that have assisted PMs include “kick-off meetings” held during the pre-performance agreement period. In addition to holding kick-off meetings, PMs should plan for subsequent program reviews to allow candid exchange among industry and user team members to resolve technical and program challenges. Successful COSSI programs have involved strong collaboration among program participants.

Early Identification of Team Responsibilities

Occasionally, the contracting firm may develop size or turnover problems that affect its ability to deliver the product according to the terms of the original

contract. For example, one contractor on a COSSI program lacked a needed technical expert but failed to notify other participants until after the agreement was signed and the performance period had begun. After some discussion, the Government agreed to provide this service outside the original terms of the contract.

Lessons Learned

Realistic identification of team responsibilities—including those of the contractor and the Government agency providing technical assistance—should occur as early as possible in the COSSI process. In evaluating the offerors' proposals, the evaluation must consider the offeror's ability to perform the prospective Stage I successfully. An offeror's proposal should include the costs that might be incurred by the Government, such as the costs of utilizing Government testing facilities or lab personnel on a reimbursement basis. Changes after award can be costly and time-consuming.

Communication during Agreement Negotiation

Confusion caused by a lack of communication among the Government team members responsible for negotiation of the individual projects can cause delays. It is important that the acquisition team including technical and project specialists participant fully in the formative phases of the agreement. Failure to agree on the government position was reported as a cause in the delay of negotiations and award. This lack of communications can cause delays and jeopardize project funding.

Lessons Learned

A draft contract vehicle should be prepared as early as possible. Negotiations of all aspects of the agreement (e.g., technical, programmatic, and business) should include all applicable parties, such as the PM, contracts, budget/finance, logistics, test, and legal personnel; as well as the potential user). Although a criticism of COSSI is that negotiating the agreements takes too long, the time spent on this communication will greatly increase the likelihood of project success. Solicitations in the past have required the use of a prototype "other transaction" (OT) business agreement. However, section 803 of the FY 2001 National Defense Authorization Act (P.L. 106-398) imposed conditions on the use of this OT authority that impact whether an OT may be used for a COSSI award. These conditions must be considered when developing the acquisition strategy and the solicitation.

Personnel Turnover

Personnel turnover can cause problems such as a lack of military customer support for the kits developed in Stage I and a lack of awareness among those responsible for Stage II procurement. Time constraints and the transfer of responsibility can result in a tendency to overlook the details of a COSSI business deal. Although COSSI programs have not directly failed because of this

lack of communication, program opportunities for reductions in life-cycle costs may be delayed or lost in the future.

Lessons Learned

A well-defined and detailed turnover strategy should be developed to ensure everyone understands the COSSI program goals and objectives, including potential savings in O&S costs. The savings benefits to the Government should be featured prominently to ensure consistency in the future management of the program. One such strategy is to employ a special marking of Government/contractor files to quickly identify COSSI files as unique.

Conclusion

Effective communication among all participants in a COSSI program is crucial for the program to be successful. Kick-off meetings, regular program reviews, and the formation of an IPT can promote thorough and accountable communication. It is also important to examine the product's "road map" and identify team responsibilities early on. The contract instrument should be developed with all appropriate parties as early as possible. In addition, plans for transition from Stage I to Stage II should be developed, and those responsible for contracting for Stage II procurement should be made aware of the COSSI program goals and objectives.

ISSUE 2: THE COSSI PROGRAM TRANSITION CHALLENGE

Background

Transition must be a principal program goal. With regard to a COSSI project, transition involves the successful insertion of purchased production kits into military equipment. This insertion of the Stage I production kits into the host system is the only outcome that provides the desired benefits of the COSSI program. In order to keep up with the dramatic increase in the pace of technology change, the DoD must focus on smart, efficient approaches to refresh existing systems with new technology. It is therefore crucial that the Department take the lead in exercising new acquisition techniques. Innovative approaches such as COSSI provide powerful tools, but their effectiveness is apparent only with completed transition examples.

COSSI transition processes can be difficult and complex because of the diverse actions and numerous parameters involved. If projects are to be successful, transition actions must be considered throughout the acquisition process. These actions begin with the decision to pursue a product with the selection of a COSSI project and conclude only when the product is successfully inserted into the weapon system. Finally, one component of the transition complexity is the number of people and organizations that are involved in both the development of technology and the budgeting of resources and purchase of the technology.

In cases where COSSI projects have failed to transition into Stage II, the main reasons have been:

- ◆ the commercial technology could not be suitably modified to meet the intended military need, and/or
- ◆ the funds to acquire the prototype kits in quantities necessary to achieve life-cycle costs savings were not available.

Lessons Learned

Guidance on successful transitions is difficult to find and often contradictory. The suggestions below offer some considerations and lessons learned from COSSI programs.

A perspective from the business world²

"The management of R&D ... must be purposeful rather than hopeful or 'hands-off' and must always be connected with the firm's overall business strategy."

The Government IPT should:

- ◆ ***Understand military needs.*** The selection of a COSSI project is the starting point for planning the transition to production in Stage II. Indeed, planning for Stage II funds should begin immediately. The military customer must be kept informed about the progress of the project, and military needs associated with the technology should be clearly understood. Commitments from the users must be real.
- ◆ ***Establish performance metrics.*** It is important for the team to begin to identify the price (for the Government), and performance characteristics that must be met if Stage II is to be realized.
- ◆ ***Develop a transition plan.*** The IPT should develop a plan to establish:
 - Appropriate data, including a form, fit, function, and interface specification;
 - The path to military transition (e.g., who will test and buy the product);
 - The type of contractual vehicle that will be used for Stage II; and
 - Transition milestones.

During Stage I, it is important to revisit and further define the transition plan as needed. Circumstances that will demand such revision and/or further definition include changes in the base technology, unanticipated failures or successes in development, changes in customer needs, and changes in the delivery schedule. To keep such changes under control, it is particularly important to:

² Rousell, Phillip A., Kamal N. Saad, and Tamara J. Erickson, *Third Generation R&D: Managing the Link to Corporate Strategy*. Arthur D. Little, Inc., 1991.

- ◆ **Assess progress against performance metrics.** A continuous assessment should be made against performance metrics. Project progress reports should be issued, and lessons learned from mistakes and successes should be employed to improve the project and processes. Performance metrics should be updated as necessary.
- ◆ **Maintain customer awareness.** The military customer should be kept in close contact throughout the project. This may be accomplished through project progress reports, assessment reports, and invitations to project reviews and demonstrations

ISSUE 3: THE ACQUISITION TRANSITION CHALLENGE

Background

At the end of Stage I, the military customer determines whether the kits meet the requirements for Stage II and if the item will proceed into production. Successful transition requires early budgeting for Stage II and a contractual instrument to procure the kits in quantities necessary to achieve life-cycle cost savings. The Stage II PMs should be mindful of the target price quoted in the initial project proposal. Before proceeding to Stage II, they should compare the target price and proposed Stage II procurement price. Any significant difference will require further evaluation regarding the decision to proceed to production, to include whether sole source award is justified, determining if the increased price is fair and reasonable, and an economic analysis to ensure the project still will produce the O&S savings anticipated in the initial proposal.

The transition from Stage I to Stage II has not been without its problems. Some Program Offices have failed to budget for production in time to avoid a break between completion of the Stage I kits and the Stage II production. Some Program Offices introduced competition for production without understanding the business arrangement anticipated in the COSSI solicitation. Finally, there have been questions regarding the need for cost or pricing information to determine if the prices for the Stage I kits or Stage II production units are fair and reasonable. These areas are addressed below.

Budget for Stage II

More than two years of prior planning in the budget cycle is required in order to have the funds in place to proceed to Stage II and reprogramming large amounts within appropriations already approved requires congressional authority. Therefore, budgeting for Stage II needs to occur before Stage I is completed. In some cases, a lack of planning for Stage II funding has prevented projects from transitioning to production.

Lessons Learned

The appropriate funds for Stage II procurements must be budgeted and allocated for the acquisition of production quantities of the Stage I kits. To aid in the

occurrence of an effective acquisition transition, production quantities should be acquired in Stage II immediately after the completion of Stage I.

Justification for no Further Competition

COSSI solicitations prior to FY 2002 solicited proposals from industry. The overall strategy was to competitively obtain Stage I proposals that included target prices for Stage II production and forecasted O&S savings for the project. Projects were selected that offered the best O&S savings. These solicitations encouraged, and in some cases required, some level of contractor cost-share. The solicitations also set forth the government's intention, if it decides to buy production, to do it without recompetition and to accomplish price analysis vice requiring detailed cost or pricing data. Follow-on sole source awards were envisioned to facilitate rapid fielding necessary to achieve forecasted O&S savings and to uphold the business arrangement set forth in the solicitation. A new competition is time consuming and disestablishes the ongoing business arrangement. The Stage I contractor may have invested scarce resources to achieve transformation of commercial items or technology into the COSSI kits. In addition, a large break in time between fabricating the kits for Stage I and producing them in quantities for Stage II could have negative technical and business impacts on the program.

Notwithstanding the intention set forth in prior COSSI solicitations to continue into Stage II without further competition, the government recognized that a sole source contract would need to be justified and reserved the right not to purchase kits for any reason to include a production price that exceeds the target price offered during the Stage I competition. This need to justify a Stage II production sole source award has been problematic for some program offices.

Lessons Learned

One acceptable approach used by most Contracting Officers is to create individual justification and approval (J&A) for each project, using the exception in FAR 6.302-1: "Only one responsible source and no other supplies or services will satisfy agency requirements." The Phase I NRE involved in modifying a commercial product or technology for DoD purposes is likely to place the incumbent contractor in a sole source position given its unique expertise with the item and the government's need for expeditious production insertion to achieve the O&S savings. Also, the overall business arrangement resulting from the COSSI solicitation should be considered in justifying the sole source award. For instance, was the contractor encouraged or required to cost-share in anticipation that the government would continue with the incumbent contractor? Did the contractor honor the target prices proposed during the COSSI competition in its production proposal? The conditions of the Stage I business arrangement and the prices offered for Stage II production are factors that the government team must consider to determine if circumstances support sole-source award for production.

One Contracting Officer reported that calling the kit “highly specialized equipment”, which is one acceptable justification for a sole source determination, forced the Government team to require a non-commercial pricing approach, that is, it required cost or pricing data. Categorizing an item as highly specialized equipment for sole source justification does not necessarily preclude it from being a commercial item. If the kit qualifies as a commercial item then cost or pricing data is not required.

Though sole source award may appear to be justified, it could be challenged. For instance, on one COSSI project, industry representatives told the DoD that they could fulfill the Government’s needs at a lower price when the Department advertised its intent to award non-competitively. The result was a FAR Part 12 commercial item competition that determined the existence of only one responsive and responsible offeror: the Stage I contractor. The qualification tests for the competition proved to be the key technical discriminator.

Execution of a Determination and Finding (D&F) pursuant to the FAR 6.302-7 exception is another approach used by the Secretary of the Navy for its COSSI actions in FY 1997. The exception states “full and open competition need not be provided for when the agency head determines that it is not in the public interest in the particular acquisition concerned.” This exception can be used only when no other exception is appropriate, it requires agency head approval and requires written notice be provided to Congress 30 days prior to award. Several Navy Contracting Officers reported that this approach worked well.

These examples demonstrate that smooth transitions are possible. All Stage II production quantities decisions require lead-time to receive approval. The lessons learned by previous COSSI participants dictate that it is imperative to start early—approximately four to six months before the completion of Stage I. Lack of advanced planning, particularly for funding, has caused failures in transitions.

Pricing

Buying based on price, without requiring cost or pricing data at Stage I and Stage II, is a key factor in attracting non-traditional Defense contractors and the commercial technology to solve a military need. Under the FAR, Contracting Officers are encouraged to use every means available to ascertain that a price is fair and reasonable before requesting cost or pricing data. If the Stage I price and Stage II target prices are offered in a competitive environment, there should be no reason to require cost or pricing data provided the contractor’s proposed price for Stage II production does not exceed the target prices offered during the original competition. If prices are not obtained competitively or if the competitive prices are not honored, then the Contracting Officer should attempt to determine fair and reasonable pricing by relying upon information other than cost or pricing data.

Lessons Learned

Contracting Officers have successfully awarded Stage I agreements and Stage II production contracts without requiring cost or pricing data based on the prices that were offered in a competitive environment and honored for Stage II production. To minimize any confusion regarding the competitive nature of the target prices for Stage II production, it is suggested that a provision be included in competitively awarded agreements or contracts for Stage I projects that sets forth the Stage II target prices, quantities for the Stage II production units, and any additional terms and conditions (e.g., maintenance or sustainment considerations) that were offered during the original competition. This will document the business arrangement established as a result of competition and facilitate smooth transition to Stage II without the need for cost or pricing data when these conditions are honored for production.

Contracting Officers also have justified award without cost or pricing data by relying upon the exception applicable to commercial items when the Stage II production item qualifies as a commercial item.

In some cases, Contracting Officers have required cost and pricing data. This should only be requested if pricing is not competitive or if the contractor does not honor competitively established target prices and it is not possible to determine fair and reasonable pricing by any other means.

COSSI project managers need to consider the above issues and the importance of appropriately documenting the strategy and understandings regarding both Stages of the COSSI project.

SUMMARY

The Government teams that have been most successful with COSSI programs have developed effective forms of communications in program and transition planning, execution, and transition, and revisited them on a regular basis.

Their results, achieved through their successful projects, will have a lasting impact on the Department of Defense because of the reduction of operation and support costs for years to come.